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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,544	01/18/2002	Klaus Hummler	01 P 14590 US (8055-115)	9627

7590 02/24/2003

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EXAMINER

MONDT, JOHANNES P

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 02/24/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/051,544

Applicant(s)

HUMMLER, KLAUS

Examiner

Johannes P Mondt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group II, claims 14-19, in Paper No. 3 is acknowledged. The traversal is on the ground(s) that while Applicant does not take issue with the shown distinctness of the invention and does not seem to take issue with the assertion by the examiner that the inventions of Group I and Group II are distinct, "applicant believes simultaneous examination will not present an undue burden". In support of this statement, Applicant mentions that "one is directed" to class 257 in class 438 vice versa. This is not found persuasive because although directions in the Classification Search page to which Applicant may refer here are useful, they do not in any way lighten the task of having to actually search the necessary subclasses.

The requirement is still deemed proper and is therefore made FINAL.

### *Claim Objections*

2. **Claims 15 -19** are objected to because of the following informalities: Claims 15-18 should refer to claim 14 instead of to claim 15; claim 19 should refer to claim 18 instead of to claim 19. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 14-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Vallett (6,078,057) in view of Goruganthu et al (6,277,659).

*Vallett teaches* (cf. Figure 3) a memory device (cf. column 3, lines 45-67) having accessible source (cf. column 2, lines 16-27) such that device parameters can be determined, comprising:

a thinned back-side of a semiconductor substrate of the device (cf. column 4, lines 21-29);

a trench 12 (cf. column 4, lines 29-33) milled from said thinned back-side exposing a portion of a vertical trench fill 8 (cf. column 4, lines 37-41); and

a conductive material (contact-mode with conductive tip) connecting the vertical trench fill and a source of the device (cf. column 4, lines 37-41).

Vallett does not necessarily teach to thin that part or at least a general neighborhood that part of the back-side of said semiconductor substrate in which said trench 12 is to be milled by an amount that exceeds the amount of thinning carried out elsewhere on the back-side of said semiconductor substrate, i.e., a dimple ground into said back-side of said semiconductor substrate of said memory device.

*However*, as is witnessed by Goruganthu et al, it is understood in the art of testable semiconductor devices that the thinning only serves a purpose in the general area where said trench 12 is to be milled while standard laser technology is available

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through which local thinning is effected, inter alia for the purpose of testing (cf. title, abstract, column 1, lines 60-65 and column 4, lines 45-50).

*Motivation* to include the teaching by Goruganthu et al in the invention by Vallett stems from the increased cost effectiveness achieved in aiming the thinning procedure at the area to be tested, rather than the entire back-side area. *Combination* of the aforementioned teaching with the invention by Vallett is especially straightforward, because exactly the same principle, relying on the detection of laser heating of interconnects, can be employed in the device by Vallett as in Goruganthu et al for determining the area to be thinned (cf. column 4, lines 50-60). *Success* in the implementation of said combination can therefore be reasonably expected.

*With regard to claim 15:* the trench 12 as taught by Vallett is milled into a portion of the vertical trench fill 8 (cf. column 4, lines 37-41).

*With regard to claims 16-17:* the conductive material is at the back side of the semiconductor substrate (cf. column 4, lines 37-41), and therefore both materially and functionally can be called a back-side electrode (claim 16) while covering a portion of the back-side of the semiconductor substrate by virtue of the inherent property of spatial extension of the conductive tip (cf. column 4, lines 37-41).

*With regard to claims 18-19:* the device of claim 15 is definite by virtue of the description of its attributes. The further limitations as defined by claims 18 and 19 do not further limit said device of claim 15.

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***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Vallett (5,990,562); Vallett (US 2001/0006233 A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P Mondt whose telephone number is 703-306-0531. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 703-308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JPM  
February 15, 2003

A handwritten signature in black ink, appearing to read 'J. P. Mondt', followed by a long horizontal line extending to the right.